



Project Summary Entire House

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Notes: Boulder County

REVIEWED

For Code Compliance

Apr 29 2025

JS

BOULDER COUNTY
BUILDING SAFETY

Design Information

Weather: Boulder, CO, US

Winter Design Conditions

Outside db 0 °F
Inside db 70 °F
Design TD 70 °F

Ventilation Method

Heating Summary

Structure 87554 Btuh
Ducts 0 Btuh
Central vent (105 cfm) 3295 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 90849 Btuh

Infiltration

Method Blower door
Shielding / stories 3 (partial) / 3
Pressure / ACH / AVF 50 Pa / 3.0 / 1999 cfm

	Heating	Cooling
Area (ft²)	6605	6605
Volume (ft³)	39972	39972
Air changes/hour	0.35	0.17
Equiv. AVF (cfm)	231	113

Heating Equipment Summary

Make n/a
Trade n/a
Model n/a
AHRI ref n/a

Efficiency n/a
Heating input 0 Btuh
Heating output 0 °F
Temperature rise 0 °F
Actual air flow 0 cfm
Air flow factor 0 cfm/Btuh
Static pressure 0 in H2O
Space thermostat n/a

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range H
Relative humidity 50 %
Moisture difference -39 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 43771 Btuh
Ducts 0 Btuh
Central vent (105 cfm) 753 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 42743 Btuh

Latent Cooling Equipment Load Sizing

Structure 1367 Btuh
Ducts 0 Btuh
Central vent (105 cfm) -1134 Btuh

Equipment latent load 1367 Btuh

Equipment Total Load (Sen+Lat) 44110 Btuh
Req. total capacity at 0.70 SHR 5.1 ton

Cooling Equipment Summary

Make n/a
Trade n/a
Cond n/a
Coil n/a
AHRI ref n/a

Efficiency n/a
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 0 cfm
Air flow factor 0 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0

Bold/italic values have been manually overridden

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



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...er CO 80303\7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

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Project Information

For: 7855 Spring Dr Boulder CO 80303

Notes: Boulder County

Design Information

Weather: Boulder, CO, US

Winter Design Conditions

Outside db 0 °F
Inside db 70 °F
Design TD 70 °F

Ventilation Method MJ8

Heating Summary

Structure 12881 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 12881 Btuh

Infiltration

Method Blower door
Shielding / stories 3 (partial) / 3
Pressure / ACH / AVF 50 Pa / 3.0 / 487 cfm

	Heating	Cooling
Area (ft²)	688	688
Volume (ft³)	7768	7768
Air changes/hour	0.58	0.28
Equiv. AVF (cfm)	76	37

Heating Equipment Summary

Make Mitsubishi Electric
Trade Mitsubishi Electric
Model SUZ-KA18NAHZ*
AHRI ref 213362153

Efficiency 9.5 HSPF2
Heating input 17161 Btuh @ 47°F
Heating output 32 °F
Temperature rise 600 cfm
Actual air flow 0.047 cfm/Btuh
Air flow factor 0.50 in H2O
Static pressure
Space thermostat
Capacity balance point = -14 °F

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range H
Relative humidity 50 %
Moisture difference -39 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 8187 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 7860 Btuh

Latent Cooling Equipment Load Sizing

Structure -195 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 0 Btuh

Equipment Total Load (Sen+Lat) 7860 Btuh
Req. total capacity at 0.85 SHR 0.8 ton

Cooling Equipment Summary

Make Mitsubishi Electric
Trade Mitsubishi Electric
Cond SUZ-KA18NAHZ*
Coil PEAD-A18AA9
AHRI ref 213362153
Efficiency 12.7 EER2, 18.9 SEER2
Sensible cooling 15300 Btuh
Latent cooling 2700 Btuh
Total cooling 18000 Btuh
Actual air flow 600 cfm
Air flow factor 0.073 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 1.00

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Project Information

For: 7855 Spring Dr Boulder CO 80303

Notes: Boulder County

Design Information

Weather: Boulder, CO, US

Winter Design Conditions

Outside db 0 °F
Inside db 70 °F
Design TD 70 °F

Ventilation Method MJ8

Heating Summary

Structure 74672 Btuh
Ducts 0 Btuh
Central vent (SER=50% 105 cfm) 3295 Btuh
Energy recovery
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 77967 Btuh

Infiltration

Method Blower door
Shielding / stories 3 (partial) / 3
Pressure / ACH / AVF 50 Pa / 3.0 / 487 cfm

	Heating	Cooling
Area (ft²)	5916	5916
Volume (ft³)	32204	32204
Air changes/hour	0.29	0.14
Equiv. AVF (cfm)	156	76

Heating Equipment Summary

Make Carrier
Trade INFINITY 24 HP with GREENSPEED...
Model 25VNA460A00300
AHRI ref 205272802

Efficiency 11 HSPF
Heating input 30307 Btuh @ 47°F
Heating output 17 °F
Temperature rise 1950 cfm
Actual air flow 0.026 cfm/Btuh
Air flow factor 0.70 in H2O
Static pressure
Space thermostat
Capacity balance point = 32 °F

Backup: Carrier KFCEH3401F24*†
Input = 24 kW, Output = 81891 Btuh, 100 AFUE

Bold/italic values have been manually overridden

Summer Design Conditions

Outside db 91 °F
Inside db 75 °F
Design TD 16 °F
Daily range H
Relative humidity 50 %
Moisture difference -39 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 35649 Btuh
Ducts 0 Btuh
Central vent (SER=50% 105 cfm) 753 Btuh
Energy recovery
Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.96
Equipment sensible load 34946 Btuh

Latent Cooling Equipment Load Sizing

Structure 1562 Btuh
Ducts 0 Btuh
Central vent (LER=50% 105 cfm) -1134 Btuh
Energy recovery
Equipment latent load 428 Btuh

Equipment Total Load (Sen+Lat) 35374 Btuh
Req. total capacity at 0.70 SHR 4.2 ton

Cooling Equipment Summary

Make Carrier
Trade INFINITY 24 HP with GREENSPEED...
Cond 25VNA460A00300
Coil FE4ANB006L++UI+UI
AHRI ref 205272802

Efficiency 13.0 EER, 21 SEER
Sensible cooling 40950 Btuh
Latent cooling 17550 Btuh
Total cooling 58500 Btuh
Actual air flow 1950 cfm
Air flow factor 0.054 cfm/Btuh
Static pressure 0.70 in H2O
Load sensible heat ratio 0.99

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Load Short Form
Entire House

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Information

	Htg	Clg		Infiltration
Outside db (°F)	0	91	Method	Blower door
Inside db (°F)	70	75	Shielding / stories	3 (partial) / 3
Design TD (°F)	70	16	Pressure /ACH /AVF	50 Pa / 3.0 / 1999 cfm
Daily range	-	H		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	62	-39		

HEATING EQUIPMENT

Make	n/a
Trade	n/a
Model	n/a
AHRI ref.	n/a
Efficiency	n/a
Heating input	
Heating output	0 Btuh
Temperature rise	0 °F
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0 in H2O
Space thermostat	n/a

COOLING EQUIPMENT

Make	n/a
Trade	n/a
Cond	n/a
Coil	n/a
AHRI ref.	n/a
Efficiency	n/a
Sensible cooling	0 Btuh
Latent cooling	0 Btuh
Total cooling	0 Btuh
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Ducted Mini AH	688	12881	8187	600	600
Main AH	5916	74672	35649	1950	1950
Entire House	6605	87554	43771	2550	3046
Other equip loads		3295	753		
Equip. @ 0.96 RSM			42743		
Latent cooling			1367		
TOTALS	6605	90849	44110	2550	3046

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Load Short Form
Ducted Mini AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Information

	Htg	Clg	Infiltration
Outside db (°F)	0	91	Blower door
Inside db (°F)	70	75	3 (partial) / 3
Design TD (°F)	70	16	50 Pa / 3.0 / 487 cfm
Daily range	-	H	
Inside humidity (%)	50	50	
Moisture difference (gr/lb)	62	-39	

HEATING EQUIPMENT

Make	Mitsubishi Electric
Trade	Mitsubishi Electric
Model	SUZ-KA18NAHZ*
AHRI ref	213362153
Efficiency	9.5 HSPF2
Heating input	
Heating output	17161 Btuh @ 47°F
Temperature rise	32 °F
Actual air flow	600 cfm
Air flow factor	0.047 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = -14 °F	

COOLING EQUIPMENT

Make	Mitsubishi Electric
Trade	Mitsubishi Electric
Cond	SUZ-KA18NAHZ*
Coil	PEAD-A18AA9
AHRI ref	213362153
Efficiency	12.7 EER2, 18.9 SEER2
Sensible cooling	15300 Btuh
Latent cooling	2700 Btuh
Total cooling	18000 Btuh
Actual air flow	600 cfm
Air flow factor	0.073 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	1.00

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Lounge	231	6471	3984	301	292
Bath 5	59	1359	389	63	29
U Stairs	116	0	0	0	0
Office	283	5051	3814	235	280
Ducted Mini AH	688	12881	8187	600	600
Other equip loads		0	0		
Equip. @ 0.96 RSM			7860		
Latent cooling			0		
TOTALS	688	12881	7860	600	600

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Load Short Form Main AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	0	91	Method	Blower door
Inside db (°F)	70	75	Shielding / stories	3 (partial) / 3
Design TD (°F)	70	16	Pressure /ACH /AVF	50 Pa / 3.0 / 487 cfm
Daily range	-	H		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	62	-39		

HEATING EQUIPMENT

Make	Carrier
Trade	INFINITY 24 HP with GREENSPEED...
Model	25VNA460A00300
AHRI ref	205272802
Efficiency	11 HSPF
Heating input	
Heating output	30307 Btuh @ 47°F
Temperature rise	17 °F
Actual air flow	1950 cfm
Air flow factor	0.026 cfm/Btuh
Static pressure	0.70 in H2O
Space thermostat	
Capacity balance point = 32 °F	

Backup: Carrier KFCEH3401F24*†
Input = 24 kW, Output = 81891 Btuh, 100 AFUE

COOLING EQUIPMENT

Make	Carrier
Trade	INFINITY 24 HP with GREENSPEED...
Model	25VNA460A00300
Coil	FE4ANB006L++UI+UI
AHRI ref	205272802
Efficiency	13.0 EER, 21 SEER
Sensible cooling	40950 Btuh
Latent cooling	17550 Btuh
Total cooling	58500 Btuh
Actual air flow	1950 cfm
Air flow factor	0.054 cfm/Btuh
Static pressure	0.70 in H2O
Load sensible heat ratio	0.99

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Bedroom Zone	693	10257	8163	268	445
Lower Level Zone	2989	39388	12437	1029	678
Living Zone	1579	17457	19037	456	1037
Primary Bed Zone	656	7571	5255	198	286
Main AH	5916	74672	35649	1950	1950
Other equip loads		3295	753		
Equip. @ 0.96 RSM			34946		
Latent cooling			428		
TOTALS	5916	77967	35374	1950	1950

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...er CO 80303\7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

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Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
 Elevation: **5551** ft
 Latitude: **40°N**

Outdoor:

Dry bulb (°F)
 Daily range (°F)
 Wet bulb (°F)
 Wind speed (mph)

Heating

0
 -
 -
 15.0

Cooling

91
 27 (H)
 59
 7.5

Indoor:

Indoor temperature (°F)
 Design TD (°F)
 Relative humidity (%)
 Moisture difference (gr/lb)

Heating

70
 70
 50
 62.0

Cooling

75
 16
 50
 -39.0

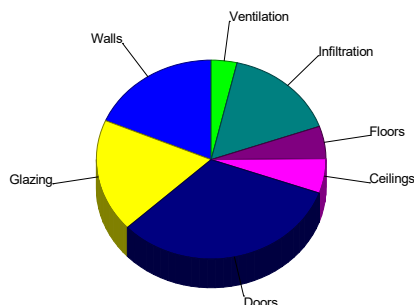
Infiltration:

Method
 Shielding / stories
 Pressure /ACH /AVF

Blower door
 3 (partial) / 3
 50 Pa / 3.0 / 1999 cfm

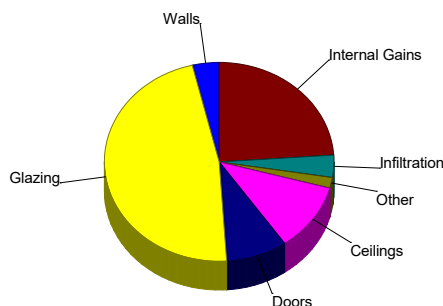
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.9	16885	18.6
Glazing	18.9	16700	18.4
Doors	371.2	29572	32.6
Ceilings	1.7	5116	5.6
Floors	1.6	4780	5.3
Infiltration	3.7	14501	16.0
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		3295	3.6
Adjustments		0	0
Total		90849	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.3	1677	3.8
Glazing	23.8	21043	47.3
Doors	48.3	3844	8.6
Ceilings	1.6	4933	11.1
Floors	0.0	17	0.0
Infiltration	0.4	1616	3.6
Ducts		0	0
Ventilation		753	1.7
Internal gains		10640	23.9
Blower		0	0
Adjustments		0	0
Total		44524	100.0



Latent Cooling Load = 1367 Btuh

Overall U-value = 0.081 Btuh/ft²-°F, Window / Floor Area = 13.4 %

Data entries checked.

Bold/italic values have been manually overridden

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
 Elevation: **5551** ft
 Latitude: **40°N**

Outdoor:

Dry bulb (°F)
 Daily range (°F)
 Wet bulb (°F)
 Wind speed (mph)

Heating

0
 -
 -
 15.0

Cooling

91
 27 (H)
 59
 7.5

Indoor:

Indoor temperature (°F)
 Design TD (°F)
 Relative humidity (%)
 Moisture difference (gr/lb)

Heating

70
 70
 50
 62.0

Cooling

75
 16
 50
 -39.0

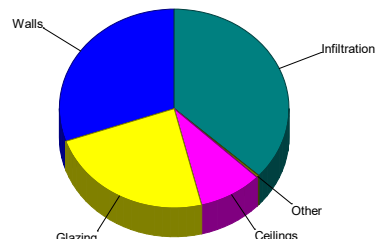
Infiltration:

Method
 Shielding / stories
 Pressure /ACH /AVF

Blower door
 3 (partial) / 3
 50 Pa / 3.0 / 487 cfm

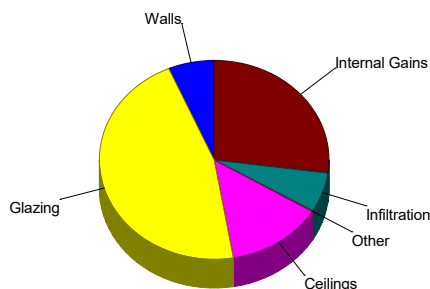
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.5	3906	30.3
Glazing	18.9	3030	23.5
Doors	0	0	0
Ceilings	1.7	1157	9.0
Floors	8.4	49	0.4
Infiltration	3.7	4739	36.8
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		12881	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.5	530	6.5
Glazing	23.6	3783	46.2
Doors	0	0	0
Ceilings	1.6	1115	13.6
Floors	1.9	11	0.1
Infiltration	0.4	528	6.4
Ducts		0	0
Ventilation		0	0
Internal gains		2220	27.1
Blower		0	0
Adjustments		0	0
Total		8187	100.0



Latent Cooling Load = 0 Btuh

Overall U-value = 0.060 Btuh/ft²-°F, Window / Floor Area = 23.3 %

Data entries checked.

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Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
 Elevation: **5551** ft
 Latitude: **40°N**

Outdoor:

Dry bulb (°F)
 Daily range (°F)
 Wet bulb (°F)
 Wind speed (mph)

Heating

0
 -
 -
 15.0

Cooling

91
 27 (H)
 59
 7.5

Indoor:

Indoor temperature (°F)
 Design TD (°F)
 Relative humidity (%)
 Moisture difference (gr/lb)

Heating

70
 70
 50
 62.0

Cooling

75
 16
 50
 -39.0

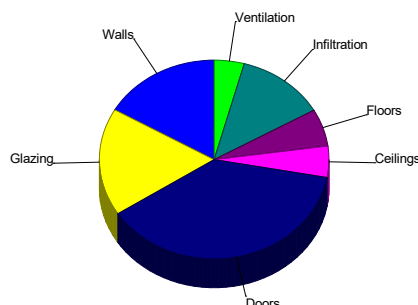
Infiltration:

Method
 Shielding / stories
 Pressure /ACH /AVF

Blower door
 3 (partial) / 3
 50 Pa / 3.0 / 487 cfm

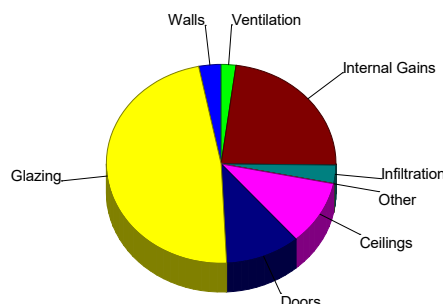
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.7	12978	16.6
Glazing	18.9	13670	17.5
Doors	371.2	29572	37.9
Ceilings	1.7	3959	5.1
Floors	1.5	4730	6.1
Infiltration	3.7	9762	12.5
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		3295	4.2
Adjustments		0	
Total		77967	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.2	1147	3.2
Glazing	24.0	17326	47.6
Doors	48.3	3844	10.6
Ceilings	1.6	3818	10.5
Floors	0.0	6	0.0
Infiltration	0.4	1088	3.0
Ducts		0	0
Ventilation		753	2.1
Internal gains		8420	23.1
Blower		0	0
Adjustments		0	
Total		36402	100.0



Latent Cooling Load = 428 Btuh

Overall U-value = 0.085 Btuh/ft²-°F, Window / Floor Area = 12.2 %

Data entries checked.

Bold/italic values have been manually overridden



Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location: Boulder, CO, US Elevation: 5551 ft Latitude: 40°N		Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)		Heating 70 70 50 62.0	Cooling 75 16 50 -39.0
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 0 - - 15.0	Cooling 91 27 (H) 59 7.5	Infiltration: Method Shielding / stories Pressure /ACH /AVF	Blower door 3 (partial) / 3 50 Pa / 3.0 / 1999 cfm	

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
R 23 R 5 CI Above grade wall: Fm wall, wd ext, r-23 cav ins, 1/2" gypsum board int fnsh, r-5 ext bd ins, 2"x4" wood frm, 16" o.c. stud	ne	701	0.050	28.0	3.52	2469	0.48	335
	se	741	0.050	28.0	3.52	2611	0.48	354
	sw	768	0.050	28.0	3.52	2705	0.48	367
	nw	906	0.050	28.0	3.52	3191	0.48	433
	all	3117	0.050	28.0	3.52	10977	0.48	1490
R 23 Subgrade wall	ne	187	0.024	23.0	1.71	320	0	0
	se	479	0.024	23.0	1.71	821	0	0
	sw	302	0.024	23.0	0.88	267	0	0
	nw	311	0.024	23.0	0.69	215	0	0
	all	1279	0.024	23.0	1.27	1622	0	0
Subgrade with R 19 Drape	ne	224	0.031	19.0	2.14	479	0	0
	se	261	0.031	19.0	2.14	560	0	0
	sw	76	0.031	19.0	1.89	145	0	0
	nw	312	0.031	19.0	2.14	669	0	0
	all	873	0.031	19.0	2.12	1853	0	0
Partitions								
Partition wall		602	0.058	23.0	4.04	2433	0.31	188
Windows								
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 7 ft head ht	ne	8	0.270	0	18.9	151	20.1	161
	se	38	0.270	0	18.9	718	24.7	938
	sw	16	0.270	0	18.9	309	24.7	403
	sw	60	0.270	0	18.9	1134	24.7	1481
	nw	64	0.270	0	18.9	1210	20.1	1287
	all	186	0.270	0	18.9	3522	22.9	4270
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 8 ft head ht	ne	32	0.270	0	18.9	599	20.1	637
	se	20	0.270	0	18.9	378	8.39	168
	sw	24	0.270	0	18.9	454	24.7	592
	nw	51	0.270	0	18.9	969	20.1	1031
	nw	104	0.270	0	18.9	1973	8.39	876
	all	231	0.270	0	18.9	4372	14.3	3304

u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 7.5 ft head ht	se	20	0.270	0	18.9	369	24.7	481
	sw	64	0.270	0	18.9	1219	24.7	1592
	nw	45	0.270	0	18.9	851	20.1	905
	all	129	0.270	0	18.9	2438	23.1	2979
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 11.5 ft head ht	se	14	0.270	0	18.9	265	24.7	346
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 9 ft head ht	se	11	0.270	0	18.9	213	24.7	278
u 27 shgc 34: FOLDING WINDOW. FLUSH SILL; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 8 ft head ht	sw	50	0.270	0	18.9	945	8.39	420
	nw	118	0.270	0	18.9	2230	8.39	990
	all	168	0.270	0	18.9	3175	8.39	1410
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 7 ft head ht	sw	20	0.270	0	18.9	378	27.4	549
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	sw	12	0.270	0	18.9	227	24.7	296
	nw	24	0.270	0	18.9	454	20.1	483
	nw	51	0.270	0	18.9	964	8.39	428
	all	87	0.270	0	18.9	1644	13.9	1207
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% outdoor insect screen; 8 ft head ht	nw	20	0.270	0	18.9	378	22.9	459
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 6.67 ft head ht	nw	17	0.270	0	18.9	315	9.32	155

Doors

U 27 DOUBLE ENTRY DOOR	ne	48	0.270	0	18.9	907	2.46	118
U 27 crawl space doorDoor	sw	15	27.00	0	1890	28350	246	3686
U 27 Garage Partition Door	n	17	0.270	0	18.9	315	2.46	41

Ceilings

R60: R 60		3045	0.024	60.0	1.68	5116	1.62	4933
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Floors

19A-0bstp: Part floor, frm flr, 12" thkns, 1/2" gypsum board int fnsh		3	0.368	0	8.38	27	1.92	6
		6	0.368	0	8.38	49	1.92	11
	all	9	0.368	0	8.38	76	1.92	17
21A-24t: Bg floor, heavy dry or light damp soil, 6' depth		1458	0.025	0	1.75	2551	0	0
21A-32t: Bg floor, light dry soil, 10' depth		323	0.020	0	1.40	452	0	0
22B-10tpl: Bg floor, light dry soil, on grade depth, r-10 edge ins		100	0.210	10.0	14.7	1466	0	0
		16	0.210	10.0	14.7	234	0	0
	all	116	0.210	10.0	14.7	1700	0	0



Wrightsoft®
A Mittek® / Berkshire Hathaway Company

Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303\7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

2025-Feb-28 14:34:40

Page 2

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:		Indoor:		Heating	Cooling
Boulder, CO, US		Indoor temperature (°F)		70	75
Elevation: 5551 ft		Design TD (°F)		70	16
Latitude: 40°N		Relative humidity (%)		50	50
		Moisture difference (gr/lb)		62.0	-39.0
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	0	91	Method	Blower door	
Daily range (°F)	-	27 (H)	Shielding / stories	3 (partial) / 3	
Wet bulb (°F)	-	59	Pressure /ACH /AVF	50 Pa / 3.0 / 487 cfm	
Wind speed (mph)	15.0	7.5			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
R 23 R 5 CI Above grade wall: Fm wall, wd ext, r-23 cav ins, 1/2" gypsum board int fnsh, r-5 ext bd ins, 2"x4" wood frm, 16" o.c. stud	ne	355	0.050	28.0	3.52	1250	0.48	170
	se	439	0.050	28.0	3.52	1545	0.48	210
	sw	488	0.050	28.0	3.52	1720	0.48	233
	nw	726	0.050	28.0	3.52	2555	0.48	347
	all	2008	0.050	28.0	3.52	7070	0.48	960
R 23 Subgrade wall	ne	187	0.024	23.0	1.71	320	0	0
	se	479	0.024	23.0	1.71	821	0	0
	sw	302	0.024	23.0	0.88	267	0	0
	nw	311	0.024	23.0	0.69	215	0	0
	all	1279	0.024	23.0	1.27	1622	0	0
Subgrade with R 19 Drape	ne	224	0.031	19.0	2.14	479	0	0
	se	261	0.031	19.0	2.14	560	0	0
	sw	76	0.031	19.0	1.89	145	0	0
	nw	312	0.031	19.0	2.14	669	0	0
	all	873	0.031	19.0	2.12	1853	0	0

Partitions

Partition wall		602	0.058	23.0	4.04	2433	0.31	188
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Windows

u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 7 ft head ht	sw	60	0.270	0	18.9	1134	24.7	1481
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 8 ft head ht	ne	32	0.270	0	18.9	599	20.1	637
	se	20	0.270	0	18.9	378	8.39	168
	sw	24	0.270	0	18.9	454	24.7	592
	nw	51	0.270	0	18.9	969	20.1	1031
	all	104	0.270	0	18.9	1973	8.39	876
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 7.5 ft head ht	all	231	0.270	0	18.9	4372	14.3	3304
	se	20	0.270	0	18.9	369	24.7	481
	sw	64	0.270	0	18.9	1219	24.7	1592
	nw	45	0.270	0	18.9	851	20.1	905
	all	129	0.270	0	18.9	2438	23.1	2979
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 9 ft head ht	se	11	0.270	0	18.9	213	24.7	278

u 27 shgc 34: FOLDING WINDOW, FLUSH SILL; NFRC rated	sw	50	0.270	0	18.9	945	8.39	420
(SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 8 ft	nw	118	0.270	0	18.9	2230	8.39	990
head ht	all	168	0.270	0	18.9	3175	8.39	1410
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°,	sw	12	0.270	0	18.9	227	24.7	296
medium; 50% outdoor insect screen; 6.67 ft head ht	nw	24	0.270	0	18.9	454	20.1	483
	nw	51	0.270	0	18.9	964	8.39	428
	all	87	0.270	0	18.9	1644	13.9	1207
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% outdoor insect	nw	20	0.270	0	18.9	378	22.9	459
screen; 8 ft head ht								
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% blinds 45°,	nw	17	0.270	0	18.9	315	9.32	155
medium; 6.67 ft head ht								

Doors

U 27 DOUBLE ENTRY DOOR	ne	48	0.270	0	18.9	907	2.46	118
U 27 crawl space doorDoor	sw	15	27.00	0	1890	28350	246	3686
U 27 Garage Partition Door	n	17	0.270	0	18.9	315	2.46	41

Ceilings

R60: R 60		2357	0.024	60.0	1.68	3959	1.62	3818
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Floors

19A-0bstp: Part floor, frm flr, 12" thkns, 1/2" gypsum board int fnsh		3	0.368	0	8.38	27	1.92	6
21A-24t: Bg floor, heavy dry or light damp soil, 6' depth		1458	0.025	0	1.75	2551	0	0
21A-32t: Bg floor, light dry soil, 10' depth		323	0.020	0	1.40	452	0	0
22B-10tpl: Bg floor, light dry soil, on grade depth, r-10 edge ins		100	0.210	10.0	14.7	1466	0	0
		16	0.210	10.0	14.7	234	0	0
	all	116	0.210	10.0	14.7	1700	0	0





Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:		Indoor:		Heating	Cooling
Boulder, CO, US		Indoor temperature (°F)		70	75
Elevation: 5551 ft		Design TD (°F)		70	16
Latitude: 40°N		Relative humidity (%)		50	50
		Moisture difference (gr/lb)		62.0	-39.0
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	0	91	Method	Blower door	
Daily range (°F)	-	27 (H)	Shielding / stories	3 (partial) / 3	
Wet bulb (°F)	-	59	Pressure /ACH /AVF	50 Pa / 3.0 / 487 cfm	
Wind speed (mph)	15.0	7.5			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
R 23 R 5 CI Above grade wall: Fm wall, wd ext, r-23 cav ins, 1/2" gypsum board int fnsh, r-5 ext bd ins, 2"x4" wood frm, 16" o.c. stud	ne	346	0.050	28.0	3.52	1220	0.48	166
	se	303	0.050	28.0	3.52	1066	0.48	145
	sw	280	0.050	28.0	3.52	984	0.48	134
	nw	181	0.050	28.0	3.52	636	0.48	86
	all	1109	0.050	28.0	3.52	3906	0.48	530

Partitions (none)

Windows

u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 7 ft head ht	ne	8	0.270	0	18.9	151	20.1	161
	se	38	0.270	0	18.9	718	24.7	938
	sw	16	0.270	0	18.9	309	24.7	403
	nw	64	0.270	0	18.9	1210	20.1	1287
	all	126	0.270	0	18.9	2388	22.1	2789
u 27 shgc 34: Window; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 50% outdoor insect screen; 11.5 ft head ht	se	14	0.270	0	18.9	265	24.7	346
u 27 shgc 34: S&R Door; NFRC rated (SHGC=0.34); 50% blinds 45°, medium; 7 ft head ht	sw	20	0.270	0	18.9	378	27.4	549

Doors (none)

Ceilings

R60: R 60		688	0.024	60.0	1.68	1157	1.62	1115
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Floors

19A-Obstp: Part floor, frm flr, 12" thkns, 1/2" gypsum board int fnsh		6	0.368	0	8.38	49	1.92	11
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Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
Elevation: **5551** ft
Latitude: **40°N**

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

0
-
-
15.0

Cooling

91
27 (H)
59
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
70
50
62.0

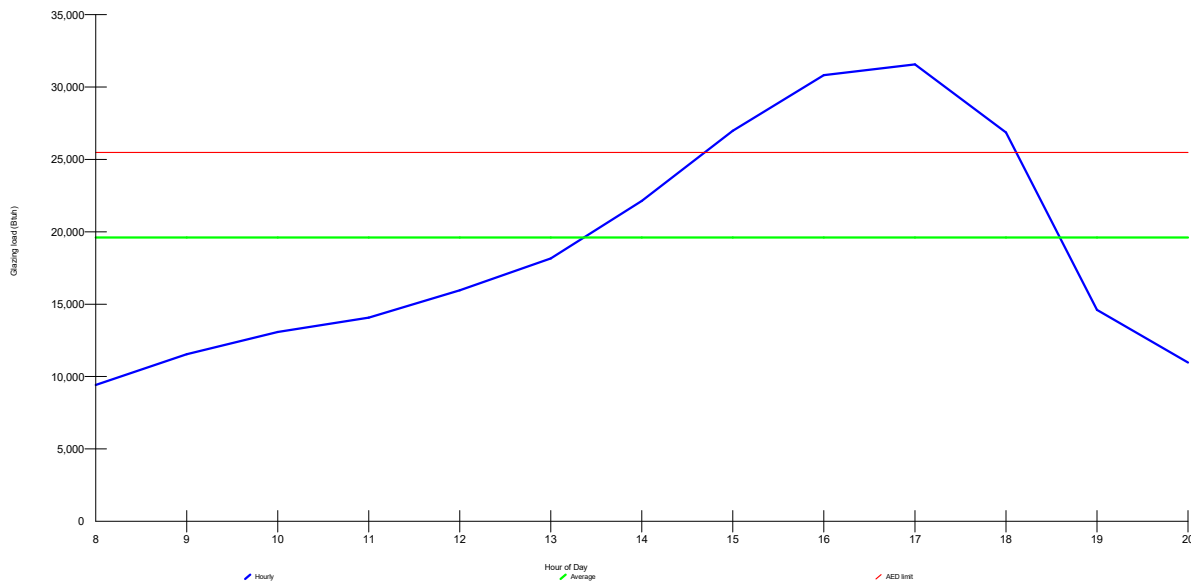
Cooling

75
16
50
-39.0

Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 61.1%.

House does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 6087 Btuh (PFG - 1.3*AFG)

Bold/italic values have been manually overridden

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
Elevation: **5551** ft
Latitude: **40°N**

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

0
-
-
15.0

Cooling

91
27 (H)
59
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
70
50
62.0

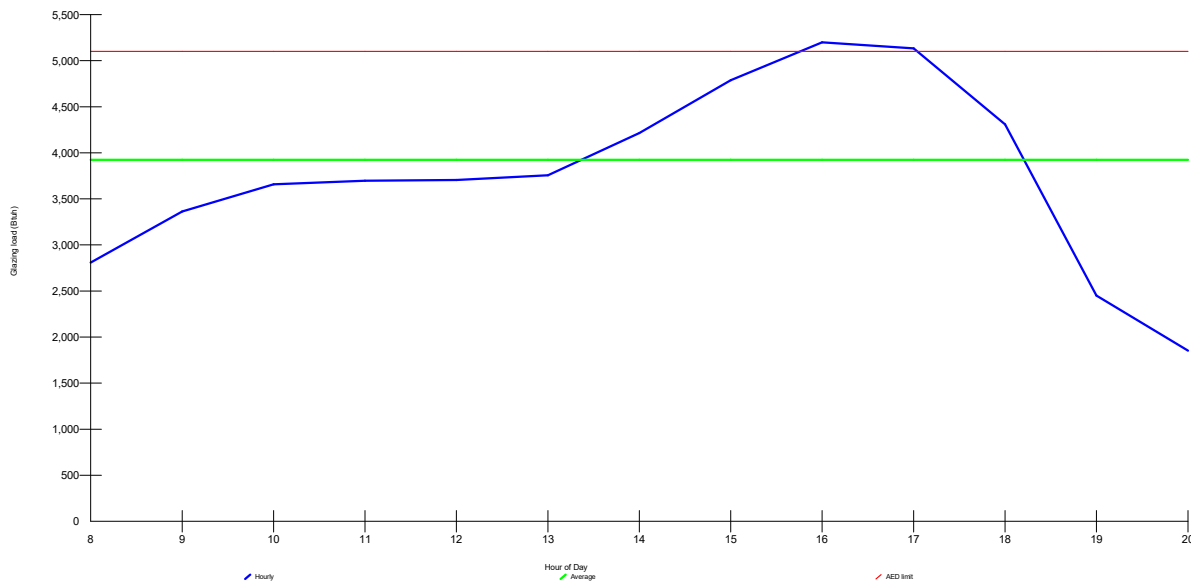
Cooling

75
16
50
-39.0

Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 32.5%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 99 Btuh (PFG - 1.3*AFG)

Bold/italic values have been manually overridden

Project Information

For: 7855 Spring Dr Boulder CO 80303

Design Conditions

Location:

Boulder, CO, US
Elevation: **5551** ft
Latitude: **40°N**

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

0
-
-
15.0

Cooling

91
27 (H)
59
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
70
50
62.0

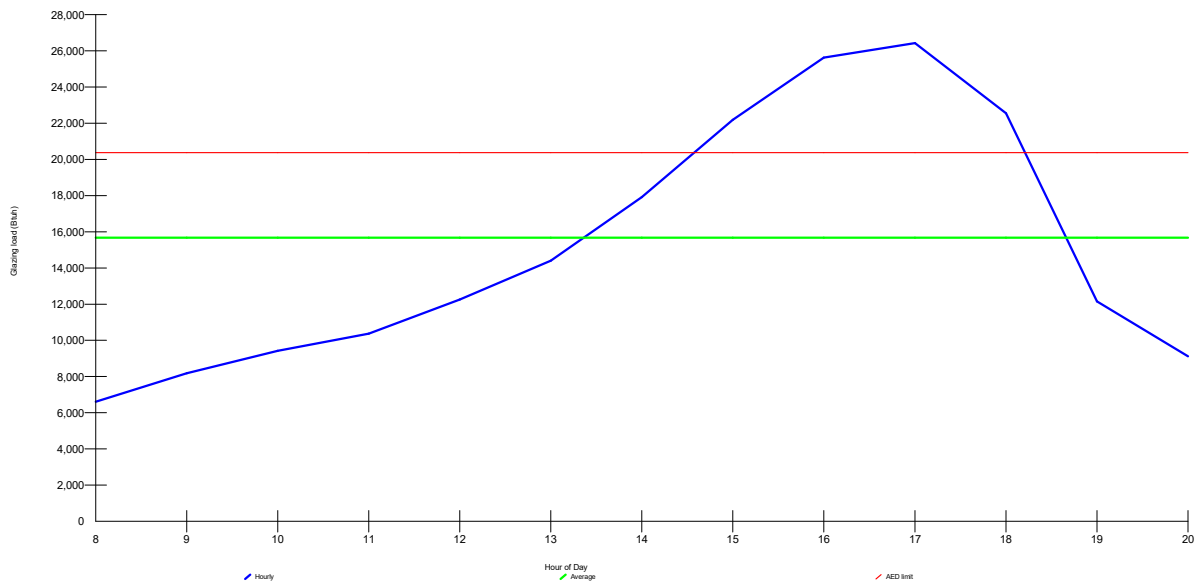
Cooling

75
16
50
-39.0

Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 68.6%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 6054 Btuh (PFG - 1.3*AFG)

Bold/italic values have been manually overridden



Right-J® Worksheet Entire House

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

Room name Exposed wall Room height Room dimensions Room area					Entire House 720.2 ft 9.5 ft 6604.8 ft²				Ducted Mini AH 118.0 ft 11.3 ft 688.4 ft²					
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	789	701	2469	335	354	346	1220	166
11	G	u 27 shgc 34	0.270	ne	18.90	20.11	8	0	151	161	8	0	151	161
	G	u 27 shgc 34	0.270	ne	18.90	20.11	32	0	599	637	0	0	0	0
	D	U 27 DOUBLE ENTRY...	0.270	ne	18.90	2.46	48	48	907	118	0	0	0	0
	W	R 23 Subgrade wall	0.074	ne	1.71	0.00	187	187	320	0	0	0	0	0
	W	Subgrade with R 19 D	0.049	ne	2.14	0.00	224	224	479	0	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	844	741	2611	354	355	303	1066	145
	G	u 27 shgc 34	0.270	se	18.90	24.69	20	0	369	481	0	0	0	0
	G	u 27 shgc 34	0.270	se	18.90	24.69	38	0	718	938	38	0	718	938
	G	u 27 shgc 34	0.270	se	18.90	8.39	20	0	378	168	0	0	0	0
	G	u 27 shgc 34	0.270	se	18.90	24.69	14	0	265	346	14	0	265	346
	G	u 27 shgc 34	0.270	se	18.90	24.69	11	0	213	278	0	0	0	0
W	R 23 Subgrade wall	0.074	se	1.71	0.00	479	479	821	0	0	0	0	0	
W	Subgrade with R 19 D	0.049	se	2.14	0.00	261	261	560	0	0	0	0	0	
W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	943	768	2705	367	316	280	984	134	
	G	u 27 shgc 34	0.270	sw	18.90	8.39	50	0	945	420	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	27.43	20	0	378	549	20	0	378	549
	G	u 27 shgc 34	0.270	sw	18.90	24.69	64	0	1219	1592	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	24.69	16	0	309	403	16	0	309	403
	G	u 27 shgc 34	0.270	sw	18.90	24.69	24	0	454	592	0	0	0	0
	W	R 23 Subgrade wall	0.074	sw	0.88	0.00	374	302	267	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	24.69	12	0	227	296	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	24.69	60	0	1134	1481	0	0	0	0
	W	Subgrade with R 19 D	0.049	sw	1.89	0.00	92	76	145	0	0	0	0	0
	D	U 27 crawl space doo	27.000	sw	1890.00	245.70	15	15	28350	3686	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	1309	906	3191	433	245	181	636	86
	G	u 27 shgc 34	0.270	nw	18.90	8.39	118	0	2230	990	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	22.93	20	0	378	459	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	20.11	45	0	851	905	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	20.11	64	0	1210	1287	64	0	1210	1287
	G	u 27 shgc 34	0.270	nw	18.90	20.11	51	0	969	1031	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	8.39	104	0	1973	876	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	8.39	51	0	964	428	0	0	0	0
	W	R 23 Subgrade wall	0.074	nw	0.69	0.00	403	311	215	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	9.32	17	0	315	155	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	20.11	24	0	454	483	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	8.39	51	0	964	428	0	0	0	0
W	Subgrade with R 19 D	0.049	nw	2.14	0.00	312	312	669	0	0	0	0	0	
P	Partition wall	0.058	-	4.04	0.31	619	602	2433	188	0	0	0	0	
D	U 27 Garage Partitio	0.270	n	18.90	2.46	17	17	315	41	0	0	0	0	
C	R60	0.024	-	1.68	1.62	3045	3045	5116	4933	688	688	1157	1115	
F	19A-0bstp	0.368	-	8.38	1.92	3	3	27	6	0	0	0	0	
F	19A-0bstp	0.368	-	8.38	1.92	6	6	49	11	6	6	49	11	
F	21A-24t	0.025	-	1.75	0.00	1458	1458	2551	0	0	0	0	0	
F	21A-32t	0.020	-	1.40	0.00	323	323	452	0	0	0	0	0	
F	22B-10tpl	0.210	-	14.70	0.00	1208	100	1466	0	0	0	0	0	
F	22B-10tpl	0.210	-	14.70	0.00	69	16	234	0	0	0	0	0	
6	c) AED excursion									6087				99
Envelope loss/gain									73052	31515			8142	5439
12	a) Infiltration b) Room ventilation								14501 0	1616 0			4739 0	528 0
13	Internal gains:		Occupants @ Appliances/other	230	4				920 9720	0			0 2220	
Subtotal (lines 6 to 13)									87554	43771			12881	8187
Less external load									0	0			0	0
Less transfer									0	0			0	0
Redistribution									0	0			0	0
14	Subtotal								87554	43771			12881	8187
15	Duct loads						0%	0%	0	0	0%	0%	0	0
Total room load									87554	43771			12881	8187
Air required (cfm)									2550	3046			600	600

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303\7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

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Right-J® Worksheet Entire House

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

1	Room name					Main AH								
2	Exposed wall					602.2 ft								
3	Room height					9.3 ft								
4	Room dimensions													
5	Room area					5916.3 ft²								
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	434	355	1250	170				
11	G	u 27 shgc 34	0.270	ne	18.90	20.11	0	0	0	0				
	G	u 27 shgc 34	0.270	ne	18.90	20.11	32	0	599	637				
	D	U 27 DOUBLE ENTRY...	0.270	ne	18.90	2.46	48	48	907	118				
	W	R 23 Subgrade wall	0.074	ne	1.71	0.00	187	187	320	0				
	W	Subgrade with R 19 D	0.049	ne	2.14	0.00	224	224	479	0				
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	490	439	1545	210				
	G	u 27 shgc 34	0.270	se	18.90	24.69	20	0	369	481				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	8.39	20	0	378	168				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	G	u 27 shqc 34	0.270	se	18.90	24.69	11	0	213	278				
W	R 23 Subgrade wall	0.074	se	1.71	0.00	479	479	821	0					
W	Subgrade with R 19 D	0.049	se	2.14	0.00	261	261	560	0					
W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	627	488	1720	233					
	G	u 27 shgc 34	0.270	sw	18.90	8.39	50	0	945	420				
	G	u 27 shgc 34	0.270	sw	18.90	27.43	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	64	0	1219	1592				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	24	0	454	592				
	W	R 23 Subgrade wall	0.074	sw	0.88	0.00	374	302	267	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	12	0	227	296				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	60	0	1134	1481				
	W	Subgrade with R 19 D	0.049	sw	1.89	0.00	92	76	145	0				
	D	U 27 crawl space doo	27.000	sw	1890.00	245.70	15	15	28350	3686				
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	1064	726	2555	347				
	G	u 27 shgc 34	0.270	nw	18.90	8.39	118	0	2230	990				
	G	u 27 shgc 34	0.270	nw	18.90	22.93	20	0	378	459				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	45	0	851	905				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	51	0	969	1031				
	G	u 27 shqc 34	0.270	nw	18.90	8.39	104	0	1973	876				
	W	R 23 Subgrade wall	0.074	nw	0.69	0.00	403	311	215	0				
	G	u 27 shgc 34	0.270	nw	18.90	9.32	17	0	315	155				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	24	0	454	483				
	G	u 27 shgc 34	0.270	nw	18.90	8.39	51	0	964	428				
	W	Subgrade with R 19 D	0.049	nw	2.14	0.00	312	312	669	0				
P	Partition wall	0.058	-	4.04	0.31	619	602	2433	188					
D	U 27 Garage Partitio	0.270	n	18.90	2.46	17	17	315	41					
C	R60	0.024	-	1.68	1.62	2357	2357	3959	3818					
F	19A-0bstp	0.368	-	8.38	1.92	3	3	27	6					
F	19A-0bstp	0.368	-	8.38	1.92	0	0	0	0					
F	21A-24t	0.025	-	1.75	0.00	1458	1458	2551	0					
F	21A-32t	0.020	-	1.40	0.00	323	323	452	0					
F	22B-10tpl	0.210	-	14.70	0.00	1208	100	1466	0					
F	22B-10tpl	0.210	-	14.70	0.00	69	16	234	0					
6	c) AED excursion									6054				
	Envelope loss/gain								64910	26141				
12	a) Infiltration b) Room ventilation								9762 0	1088 0				
13	Internal gains: Occupants @ Appliances/other					230	4			920 7500				
	Subtotal (lines 6 to 13)								74672	35649				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								74672	35649				
15	Duct loads						0%	0%	0	0				
	Total room load								74672	35649				
	Air required (cfm)								1950	1950				

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





Right-J® Worksheet Ducted Mini AH

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

1	Room name						Ducted Mini AH				Lounge			
2	Exposed wall						11.3 ft				21.2 ft			
3	Room height						118.0 ft				9.5 ft			
4	Room dimensions						688.4 ft²				230.6 ft²			
5	Room area										20.5 x 11.2 ft			
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	354	346	1220	166	0	0	0	0
	G	u 27 shgc 34	0.270	ne	18.90	20.11	8	0	151	161	0	0	0	0
	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0
	D	U 27 DOUBLE ENTRY...	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0
11	W	R 23 Subgrade wall	0.074	ne	0.00	0.00	0	0	0	0	0	0	0	0
	W	Subgrade with R 19 D	0.049	ne	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	355	303	1066	145	95	71	250	34
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	se	18.90	24.69	38	0	718	938	24	0	454	592
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	se	18.90	24.69	14	0	265	346	0	0	0	0
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 Subgrade wall	0.074	se	0.00	0.00	0	0	0	0	0	0	0	0
	W	Subgrade with R 19 D	0.049	se	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	316	280	984	134	107	87	306	42
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	27.43	20	0	378	549	20	0	378	549
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	24.69	16	0	309	403	0	0	0	0
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 Subgrade wall	0.074	sw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0
	W	Subgrade with R 19 D	0.049	sw	0.00	0.00	0	0	0	0	0	0	0	0
	D	U 27 crawl space doo	27.000	sw	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	245	181	636	86	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	20.11	64	0	1210	1287	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	W	R 23 Subgrade wall	0.074	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0
	W	Subgrade with R 19 D	0.049	nw	0.00	0.00	0	0	0	0	0	0	0	0
	P	Partition wall	0.058	-	0.00	0.00	0	0	0	0	0	0	0	0
	D	U 27 Garage Partitio	0.270	n	0.00	0.00	0	0	0	0	0	0	0	0
	C	R60	0.024	-	1.68	1.62	688	688	1157	1115	231	231	387	374
	F	19A-Obstp	0.368	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	19A-Obstp	0.368	-	8.38	1.92	6	6	49	11	0	0	0	0
	F	21A-24t	0.025	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									99				-374
	Envelope loss/gain								8142	5439			1775	1216
12	a) Infiltration								4739	528			754	84
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ Appliances/other	230				0			0	0			0
										2220				1360
	Subtotal (lines 6 to 13)								12881	8187			2529	2660
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			3942	1324
14	Subtotal								12881	8187			6471	3984
15	Duct loads						0%	0%	0	0	-0%	0%	0	0
	Total room load								12881	8187			6471	3984
	Air required (cfm)								600	600			301	292

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303/7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

2025-Feb-28 14:34:40

Page 3

1	Room name					Bath 5 16.5 ft					U Stairs 32.5 ft				
2	Exposed wall					9.5 ft					20.1 ft				
3	Room height					5.2 x 11.2 ft					10.5 x 11.0 ft				
4	Room dimensions					59.1 ft²					115.5 ft²				
5	Room area														
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	107	99	348	47	143	143	504	68	
11	G	u 27 shgc 34	0.270	ne	18.90	20.11	8	0	151	161	0	0	0	0	
	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	D	U 27 DOUBLE ENTRY...	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	W	R 23 Subgrade wall	0.074	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	W	Subgrade with R 19 D	0.049	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	50	50	176	24	210	182	640	87	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0	14	0	265	346	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0	14	0	265	346	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
W	R 23 Subgrade wall	0.074	se	0.00	0.00	0	0	0	0	0	0	0	0		
W	Subgrade with R 19 D	0.049	se	0.00	0.00	0	0	0	0	0	0	0	0		
W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	0	0	0	0	104	104	368	50		
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	27.43	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	W	R 23 Subgrade wall	0.074	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	W	Subgrade with R 19 D	0.049	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	D	U 27 crawl space doo	27.000	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	W	R 23 Subgrade wall	0.074	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
W	Subgrade with R 19 D	0.049	nw	0.00	0.00	0	0	0	0	0	0	0	0		
P	Partition wall	0.058	-	0.00	0.00	0	0	0	0	0	0	0	0		
D	U 27 Garage Partitio	0.270	n	0.00	0.00	0	0	0	0	0	0	0	0		
C	R60	0.024	-	1.68	1.62	59	59	99	96	116	116	194	187		
F	19A-0bstp	0.368	-	0.00	0.00	0	0	0	0	0	0	0	0		
F	19A-0bstp	0.368	-	8.38	1.92	0	0	0	0	0	0	0	0		
F	21A-24t	0.025	-	0.00	0.00	0	0	0	0	0	0	0	0		
F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0		
F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0	0	0	0	0		
F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0	0	0	0	0		
6	c) AED excursion								-4				50		
	Envelope loss/gain								774	324			2235	1134	
12	a) Infiltration								585	65			1707	190	
	b) Room ventilation								0	0			0	0	
13	Internal gains: Occupants @ Appliances/other 230						0		0	0	0		0	0	
	Subtotal (lines 6 to 13)								1359	389			3942	1324	
	Less external load								0	0			0	0	
	Less transfer								0	0			0	0	
	Redistribution								0	0			-3942	-1324	
14	Subtotal								1359	389			0	0	
15	Duct loads						-0%	0%	0	0		-0%	0%	0	0
	Total room load								1359	389			0	0	
	Air required (cfm)								63	29			0	0	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Right-J® Worksheet Ducted Mini AH

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

1	Room name					Office								
2	Exposed wall					47.8 ft								
3	Room height					9.5 ft					heat/cool			
4	Room dimensions					25.8 x 11.0 ft								
5	Room area					283.2 ft²								
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	104	104	368	50				
11	G	u 27 shgc 34	0.270	ne	18.90	20.11	0	0	0	0				
	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0				
	D	U 27 DOUBLE ENTRY...	0.270	ne	0.00	0.00	0	0	0	0				
	W	R 23 Subgrade wall	0.074	ne	0.00	0.00	0	0	0	0				
	W	Subgrade with R 19 D	0.049	ne	0.00	0.00	0	0	0	0				
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	0	0	0	0				
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0				
W	R 23 Subgrade wall	0.074	se	0.00	0.00	0	0	0	0					
W	Subgrade with R 19 D	0.049	se	0.00	0.00	0	0	0	0					
W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	104	88	310	42					
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	27.43	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	16	0	309	403				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	W	R 23 Subgrade wall	0.074	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	W	Subgrade with R 19 D	0.049	sw	0.00	0.00	0	0	0	0				
	D	U 27 crawl space doo	27.000	sw	0.00	0.00	0	0	0	0				
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	245	181	636	86				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	64	0	1210	1287				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	W	R 23 Subgrade wall	0.074	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	W	Subgrade with R 19 D	0.049	nw	0.00	0.00	0	0	0	0				
P	Partition wall	0.058	-	0.00	0.00	0	0	0	0					
D	U 27 Garage Partitio	0.270	n	0.00	0.00	0	0	0	0					
C	R60	0.024	-	1.68	1.62	283	283	476	459					
F	19A-0bstp	0.368	-	0.00	0.00	0	0	0	0					
F	19A-0bstp	0.368	-	8.38	1.92	6	6	49	11					
F	21A-24t	0.025	-	0.00	0.00	0	0	0	0					
F	21A-32t	0.020	-	0.00	0.00	0	0	0	0					
F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0					
F	22B-10tpl	0.210	-	0.00	0.00	0	0	0	0					
6	c) AED excursion									427				
	Envelope loss/gain								3358	2766				
12	a) Infiltration								1693	189				
	b) Room ventilation								0	0				
13	Internal gains: Occupants @ Appliances/other					230	0			0				
	Subtotal (lines 6 to 13)								5051	3814				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								5051	3814				
15	Duct loads								0	0				
	Total room load								5051	3814				
	Air required (cfm)								235	280				

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303/7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW



Right-J® Worksheet Main AH

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

1	Room name					Main AH				Bedroom Zone					
2	Exposed wall					602.2 ft				88.8 ft					
3	Room height					9.3 ft				11.0 ft					
4	Room dimensions														
5	Room area					5916.3 ft²				692.7 ft²					
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	434	355	1250	170	96	96	339	46	
	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	ne	18.90	20.11	32	0	599	637	0	0	0	0	
	D	U 27 DOUBLE ENTRY...	0.270	ne	18.90	2.46	48	48	907	118	0	0	0	0	
11	W	R 23 Subgrade wall	0.074	ne	1.71	0.00	187	187	320	0	0	0	0	0	
	W	Subgrade with R 19 D	0.049	ne	2.14	0.00	224	224	479	0	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	490	439	1545	210	239	220	774	105	
	G	u 27 shgc 34	0.270	se	18.90	24.69	20	0	369	481	20	0	369	481	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	8.39	20	0	378	168	0	0	0	0	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	24.69	11	0	213	278	0	0	0	0	
	W	R 23 Subgrade wall	0.074	se	1.71	0.00	479	479	821	0	0	0	0	0	
	W	Subgrade with R 19 D	0.049	se	2.14	0.00	261	261	560	0	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	627	488	1720	233	407	342	1206	164	
	G	u 27 shgc 34	0.270	sw	18.90	8.39	50	0	945	420	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	64	0	1219	1592	64	0	1219	1592	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	24	0	454	592	0	0	0	0	
	W	R 23 Subgrade wall	0.074	sw	0.88	0.00	374	302	267	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	12	0	227	296	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	60	0	1134	1481	0	0	0	0	
	W	Subgrade with R 19 D	0.049	sw	1.89	0.00	92	76	145	0	0	0	0	0	
	D	U 27 crawl space doo	27.000	sw	1890.00	245.70	15	15	28350	3686	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	1064	726	2555	347	234	189	665	90	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	118	0	2230	990	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	22.93	20	0	378	459	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	45	0	851	905	45	0	851	905	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	51	0	969	1031	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	104	0	1973	876	0	0	0	0	
	W	R 23 Subgrade wall	0.074	nw	0.69	0.00	403	311	215	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	9.32	17	0	315	155	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	24	0	454	483	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	51	0	964	428	0	0	0	0	
	W	Subgrade with R 19 D	0.049	nw	2.14	0.00	312	312	669	0	0	0	0	0	
	P	Partition wall	0.058	-	4.04	0.31	619	602	2433	188	0	0	0	0	
	D	U 27 Garage Partitio	0.270	n	18.90	2.46	17	17	315	41	0	0	0	0	
	C	R60	0.024	-	1.68	1.62	2357	2357	3959	3818	693	693	1164	1122	
	F	19A-Obstp	0.368	-	8.38	1.92	3	3	27	6	3	3	27	6	
	F	19A-Obstp	0.368	-	0.00	0.00	0	0	0	0	0	0	0	0	
	F	21A-24t	0.025	-	1.75	0.00	1458	1458	2551	0	0	0	0	0	
	F	21A-32t	0.020	-	1.40	0.00	323	323	452	0	0	0	0	0	
	F	22B-10tpl	0.210	-	14.70	0.00	1208	100	1466	0	0	0	0	0	
	F	22B-10tpl	0.210	-	14.70	0.00	69	16	234	0	0	0	0	0	
6	c) AED excursion									6054				2156	
	Envelope loss/gain								64910	26141			6613	6667	
12	a) Infiltration								9762	1088			3644	406	
	b) Room ventilation								0	0			0	0	
13	Internal gains:		Occupants @ Appliances/other	230			4			920 7500	2			460 630	
	Subtotal (lines 6 to 13)								74672	35649			10257	8163	
	Less external load									0	0			0	0
	Less transfer									0	0			0	0
	Redistribution									0	0			0	0
14	Subtotal								74672	35649			10257	8163	
15	Duct loads						0%	0%		0		0%	0%	0	0
	Total room load								74672	35649			10257	8163	
	Air required (cfm)									1950	1950			268	445

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





Right-J® Worksheet Main AH

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

Room name Exposed wall Room height Room dimensions Room area					Lower Level Zone 308.2 ft 7.5 ft 2988.7 ft²					Living Zone 134.5 ft 11.0 ft 1578.7 ft²					
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	0	0	0	0	82	34	121	16	
11	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	ne	18.90	20.11	0	0	0	0	0	0	0	0	
	D	U 27 DOUBLE ENTRY...	0.270	ne	18.90	2.46	0	0	0	0	48	48	907	118	
	W	R 23 Subgrade wall	0.074	ne	1.71	0.00	187	187	320	0	0	0	0	0	
	W	Subgrade with R 19 D	0.049	ne	2.14	0.00	224	224	479	0	0	0	0	0	
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	0	0	0	0	250	219	771	105	
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	8.39	0	0	0	0	20	0	378	168	
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0	11	0	213	278	
W	R 23 Subgrade wall	0.074	se	1.71	0.00	479	479	821	0	0	0	0	0	0	
W	Subgrade with R 19 D	0.049	se	2.14	0.00	261	261	560	0	0	0	0	0	0	
W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	0	0	0	0	220	146	514	70		
	G	u 27 shgc 34	0.270	sw	18.90	8.39	0	0	0	0	50	0	945	420	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0	24	0	454	592	
	W	R 23 Subgrade wall	0.074	sw	0.88	0.00	374	302	267	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	sw	18.90	24.69	12	0	227	296	0	0	0	0	
	G	u 27 shgc 34	0.270	sw	18.90	24.69	60	0	1134	1481	0	0	0	0	
	W	Subgrade with R 19 D	0.049	sw	1.89	0.00	92	76	145	0	0	0	0	0	0
	D	U 27 crawl space doo	27.000	sw	1890.00	245.70	15	15	28350	3686	0	0	0	0	0
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	0	0	0	0	544	322	1134	154	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	0	0	0	0	118	0	2230	990	
	G	u 27 shgc 34	0.270	nw	18.90	22.93	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	0	0	0	0	104	0	1973	876	
	W	R 23 Subgrade wall	0.074	nw	0.69	0.00	403	311	215	0	0	0	0	0	0
	G	u 27 shgc 34	0.270	nw	18.90	9.32	17	0	315	155	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	20.11	24	0	454	483	0	0	0	0	
	G	u 27 shgc 34	0.270	nw	18.90	8.39	51	0	964	428	0	0	0	0	
	W	Subgrade with R 19 D	0.049	nw	2.14	0.00	312	312	669	0	0	0	0	0	0
P	Partition wall	0.058	-	4.04	0.31	0	0	0	0	382	366	1477	114		
D	U 27 Garage Partitio	0.270	n	18.90	2.46	0	0	0	0	17	17	315	41		
C	R60	0.024	-	1.68	1.62	0	0	0	0	1008	1008	1693	1633		
F	19A-0bstp	0.368	-	8.38	1.92	0	0	0	0	0	0	0	0	0	
F	19A-0bstp	0.368	-	0.00	0.00	0	0	0	0	0	0	0	0	0	
F	21A-24t	0.025	-	1.75	0.00	1458	1458	2551	0	0	0	0	0	0	
F	21A-32t	0.020	-	1.40	0.00	323	323	452	0	0	0	0	0	0	
F	22B-10tpl	0.210	-	14.70	0.00	1208	100	1466	0	0	0	0	0	0	
F	22B-10tpl	0.210	-	14.70	0.00	0	0	0	0	69	16	234	0	0	
6	c) AED excursion									3858				8586	
Envelope loss/gain									39388	10387			13361	14161	
12	a) Infiltration								0	0			4096	456	
	b) Room ventilation								0	0			0	0	
13	Internal gains:		Occupants @	230			0			0	1			230	
			Appliances/other							2050				4190	
Subtotal (lines 6 to 13)									39388	12437			17457	19037	
14	Less external load								0	0			0	0	
	Less transfer								0	0			0	0	
	Redistribution								0	0			0	0	
	Subtotal								39388	12437			17457	19037	
15	Duct loads						0%	0%	0	0	0%	0%	0	0	
Total room load									39388	12437			17457	19037	
Air required (cfm)									1029	678			456	1037	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





Right-J® Worksheet Main AH

Job: 7855 Spring Dr Boulder CO 80...
Date: 02/28/2025
By: Daniel Thomas

1	Room name					Primary Bed Zone								
2	Exposed wall					70.8 ft								
3	Room height					11.0 ft								
4	Room dimensions													
5	Room area					656.2 ft²								
	Ty	Construction number	U-value (Btuh/ft²·°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	R 23 R 5 CI Above g	0.050	ne	3.52	0.48	256	224	789	107				
	G	u 27 shgc 34	0.270	ne	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	ne	18.90	20.11	32	0	599	637				
	D	U 27 DOUBLE ENTRY...	0.270	ne	18.90	2.46	0	0	0	0				
11	W	R 23 Subgrade wall	0.074	ne	1.71	0.00	0	0	0	0				
	W	Subgrade with R 19 D	0.049	ne	2.14	0.00	0	0	0	0				
	W	R 23 R 5 CI Above g	0.050	se	3.52	0.48	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	8.39	0	0	0	0				
	G	u 27 shgc 34	0.270	se	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	se	18.90	24.69	0	0	0	0				
	W	R 23 Subgrade wall	0.074	se	1.71	0.00	0	0	0	0				
	W	Subgrade with R 19 D	0.049	se	2.14	0.00	0	0	0	0				
	W	R 23 R 5 CI Above g	0.050	sw	3.52	0.48	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	8.39	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0				
	W	R 23 Subgrade wall	0.074	sw	0.88	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0				
	G	u 27 shgc 34	0.270	sw	18.90	24.69	0	0	0	0				
	W	Subgrade with R 19 D	0.049	sw	1.89	0.00	0	0	0	0				
	D	U 27 crawl space doo	27.000	sw	1890.00	245.70	0	0	0	0				
	W	R 23 R 5 CI Above g	0.050	nw	3.52	0.48	286	215	756	103				
	G	u 27 shgc 34	0.270	nw	18.90	8.39	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	22.93	20	0	378	459				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	0.00	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	51	0	969	1031				
	G	u 27 shgc 34	0.270	nw	18.90	8.39	0	0	0	0				
	W	R 23 Subgrade wall	0.074	nw	0.69	0.00	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	9.32	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	20.11	0	0	0	0				
	G	u 27 shgc 34	0.270	nw	18.90	8.39	0	0	0	0				
	W	Subgrade with R 19 D	0.049	nw	2.14	0.00	0	0	0	0				
	P	Partition wall	0.058	-	4.04	0.31	236	236	956	74				
	D	U 27 Garage Partitio	0.270	n	18.90	2.46	0	0	0	0				
	C	R60	0.024	-	1.68	1.62	656	656	1103	1063				
	F	19A-0bstp	0.368	-	8.38	1.92	0	0	0	0				
	F	19A-0bstp	0.368	-	0.00	0.00	0	0	0	0				
	F	21A-24t	0.025	-	1.75	0.00	0	0	0	0				
	F	21A-32t	0.020	-	1.40	0.00	0	0	0	0				
	F	22B-10tpl	0.210	-	14.70	0.00	0	0	0	0				
	F	22B-10tpl	0.210	-	14.70	0.00	0	0	0	0				
6	c) AED excursion									697				
	Envelope loss/gain								5549	4170				
12	a) Infiltration								2022	225				
	b) Room ventilation								0	0				
13	Internal gains:		Occupants @	230			1			230				
			Appliances/other							630				
	Subtotal (lines 6 to 13)								7571	5255				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								7571	5255				
15	Duct loads						0%	0%	0	0				
	Total room load								7571	5255				
	Air required (cfm)								198	286				

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



A Mitak® / Berkshire Hathaway Company

Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303/7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

2025-Feb-28 14:34:40

Page 8



Manual S Compliance Report

Ducted Mini AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Cooling Equipment

Design Conditions

Outdoor design DB:	91.0°F	Sensible gain:	8187 Btuh	Entering coil DB:	75.0°F
Outdoor design WB:	59.0°F	Latent gain:	0 Btuh	Entering coil WB:	61.6°F
Indoor design DB:	75.0°F	Total gain:	8187 Btuh		
Indoor RH:	50%	Estimated airflow:	600 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Mitsubishi Electric	Model:	SUZ-KA18NAHZ*+PEAD-A18AA9
Actual airflow:	600 cfm		
Sensible capacity:	12170 Btuh	149% of load	
Latent capacity:	2000 Btuh	0% of load	
Total capacity:	14170 Btuh	173% of load	SHR: 86%

Heating Equipment

Design Conditions

Outdoor design DB:	0°F	Heat loss:	12881 Btuh	Entering coil DB:	70.0°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Mitsubishi Electric	Model:	SUZ-KA18NAHZ*+PEAD-A18AA9		
Actual airflow:	600 cfm				
Output capacity:	17161 Btuh	133% of load		Capacity balance:	-14 °F
Supplemental heat required:	0 Btuh			Economic balance:	-99 °F

Meets all requirements of ACCA Manual S.



Right-Suite® Universal 2025 25.0.01 RSU59405

...er CO 80303\7855 Spring Dr Boulder CO 80303.rup Calc = MJ8 Building faces: NW

2025-Feb-28 14:34:42

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SPECIFICATIONS: PEAD-A18AA7 & SUZ-KA18NAHZ

Cooling at 95°F ¹	Maximum Capacity	BTU/H	18,000
	Rated Capacity	BTU/H	18,000
	Minimum Capacity	BTU/H	9,320
	Maximum Power Input	W	1,400
	Rated Power Input	W	1,400
	Moisture Removal	Pints/h	3.6
	Sensible Heat Factor		0.78
Heating at 47°F ²	Power Factor	%	96.0/96.0
	Maximum Capacity	BTU/H	28,000
	Rated Capacity	BTU/H	21,600
	Minimum Capacity	BTU/H	8,800
	Maximum Power Input	W	3,250
	Rated Power Input	W	1,890
Heating at 17°F ³	Power Factor	%	97.0/97.0
	Maximum Capacity	BTU/H	21,600
	Rated Capacity	BTU/H	14,200
	Maximum Power Input	W	2,550
	Rated Power Input	W	1,670
Heating at 5°F ⁴	Maximum Capacity	BTU/H	21,600
	Maximum Power Input	W	3,800
Efficiency	SEER		18.9
	EER ¹		12.8
	HSPF [IV]		10.8
	COP at 47°F ²		3.3
	COP at 17°F at Maximum Capacity ³		2.48
	COP at 5°F at Maximum Capacity ⁴		1.66
Electrical	ENERGY STAR® Certified		Yes
	Voltage, Phase, Frequency		208/230, 1, 60
	Guaranteed Voltage Range	V AC	198 - 253, 187 - 253
	Voltage: Indoor - Outdoor, S1-S2	V AC	208/230
	Voltage: Indoor - Outdoor, S2-S3	V DC	24
	Short-circuit Current Rating [SCCR]	kA	5
	Recommended Fuse/Breaker Size (Outdoor)	A	20
	Recommended Wire Size [Indoor - Outdoor]	AWG	14
Indoor Unit	Power Supply		Indoor unit is powered by the outdoor unit
	MCA	A	1.69
	Fan Motor Full Load Amperage	A	1.35
	Fan Motor Output	W	85
	Fan Motor Type		DC Motor
	Airflow Rate at Cooling, Dry	CFM	424–512–600
	Airflow Rate at Cooling, Wet	CFM	382–461–540
	Airflow Rate at Heating, Dry	CFM	424–512–600
	Sound Pressure Level [Cooling]	dB[A]	30–33–37
	Sound Pressure Level [Heating]	dB[A]	30–33–37
	External Static Pressure	in.WG	0.14–0.2–0.28–0.4–0.6
	Drain Pipe Size	In. [mm]	1-1/4 [32]
	Condensate Lift Mechanism, Maximum Distance	In. [mm]	27-9/16 [700]
	Coating on Heat Exchanger		—
	External Finish Color		Galvanized
	Unit Dimensions	W x D x H: In. [mm]	35-7/16 x 28-7/8 x 9-7/8 [900 x 732 x 250]
	Package Dimensions	W x D x H: In. [mm]	45-5/16 x 34-11/16 x 13-7/16 [1150 x 880 x 341]
	Unit Weight	Lbs. [kg]	62 [28]
	Package Weight	Lbs. [kg]	71 [32]
Indoor Unit Operating Temperature Range	Cooling Intake Air Temp [Maximum / Minimum]*	°F	90 DB, 72 WB / 66 DB, 61 WB
	Heating Intake Air Temp [Maximum / Minimum]	°F	77 DB / 59 DB

NOTES:

AHRI Rated Conditions

(Rated data is determined at a fixed compressor speed)

¹Cooling (Indoor // Outdoor)

°F 80 DB, 67 WB // 95 DB, 75 WB

²Heating at 47°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 47 DB, 43 WB

³Heating at 17°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 17 DB, 15 WB

Conditions

⁴Heating at 5°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 5 DB, 4 WB

⁵Heating at -4°F (Indoor // Outdoor)

°F 70 DB, 60 WB // -4 DB, -5 WB

⁶Heating at -5°F (Indoor // Outdoor)

°F 70 DB, 60 WB // -5 DB, -6 WB

⁷Heating at -13°F (Indoor // Outdoor)

°F 70 DB, 60 WB // -13 DB, -14 WB

*Outdoor Unit Operating Temperature Range (Cooling Air Temp (Maximum / Minimum)):

• Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.

**Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):

• System cuts out in heating mode to avoid thermistor error and automatically restarts at these temperatures.

Cooling Adjusted capacity for elevation ACCA Blower heat loss, refrigerant line loss = 14170 Btuh

Heating Adjusted capacity for elevation and refrigerant line loss = 17161 Btuh



Manual S Compliance Report

Main AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Cooling Equipment

Design Conditions

Outdoor design DB:	91.0°F	Sensible gain:	36402	Btuh	Entering coil DB:	75.4°F
Outdoor design WB:	59.0°F	Latent gain:	428	Btuh	Entering coil WB:	61.6°F
Indoor design DB:	75.0°F	Total gain:	36830	Btuh		
Indoor RH:	50%	Estimated airflow:	1950	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	25VNA460A00300+FE4ANB006L++UI+UI	
Actual airflow:	1950	cfm		
Sensible capacity:	39951	Btuh	110% of load	
Latent capacity:	4000	Btuh	935% of load	
Total capacity:	43951	Btuh	119% of load	SHR: 91%

Heating Equipment

Design Conditions

Outdoor design DB:	0°F	Heat loss:	77967	Btuh	Entering coil DB:	68.1°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	25VNA460A00300+FE4ANB006L++UI+UI	
Actual airflow:	1950	cfm		
Output capacity:	30307	Btuh	39% of load	Capacity balance: 32 °F
Supplemental heat required:	47660	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:	Carrier	Model:	KFCEH3401F24*†	
Actual airflow:	1950	cfm		
Output capacity:	24.0	kW	105% of load	Temp. rise: 154 °F

Meets all requirements of ACCA Manual S.





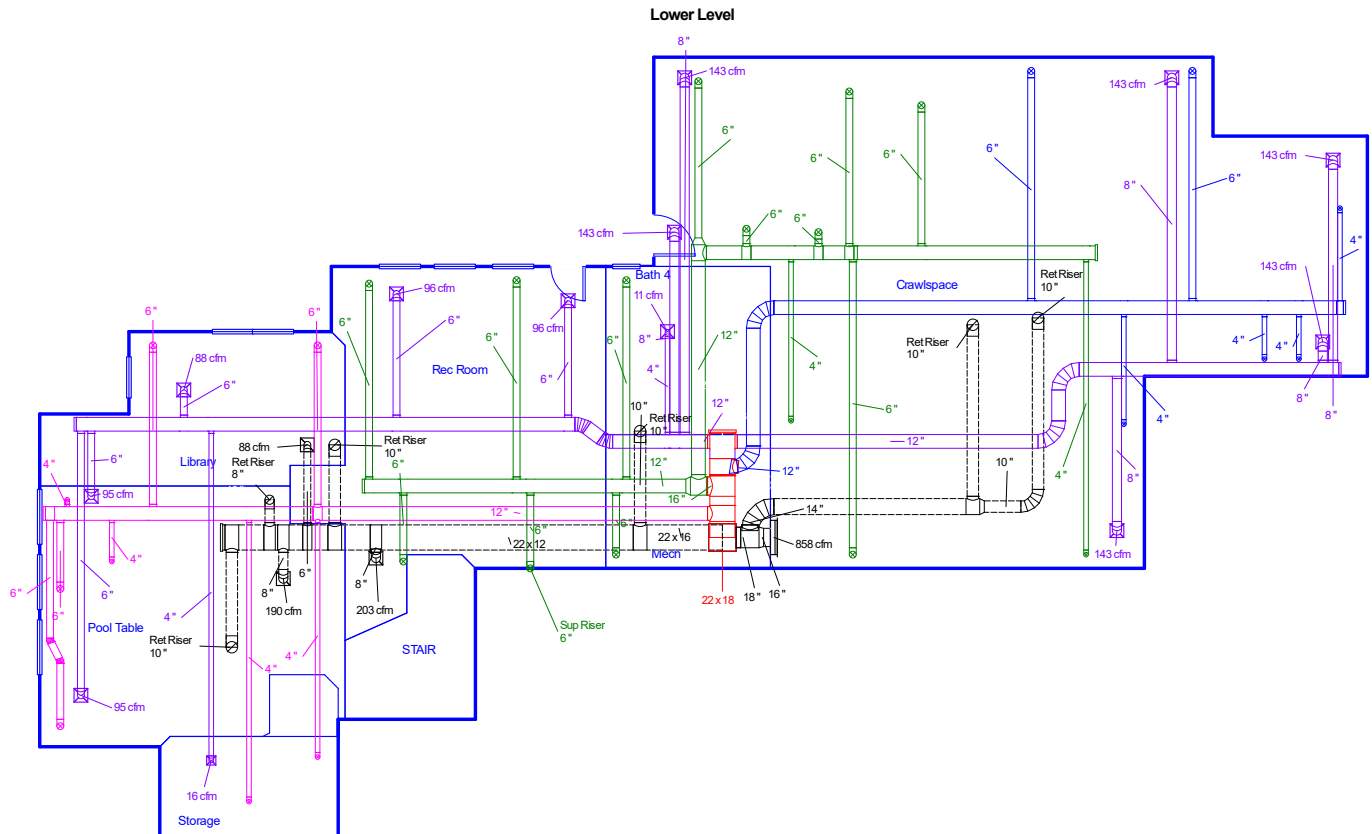
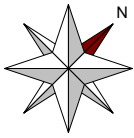
Split System Ratings

Outdoor Unit: **25VNA460A*031***
Indoor Unit: **FE4ANB006L+UI**
Furnace:
AHRI Certified Reference #: 206788970

M1 Cooling Cap (Btuh): 58000
M1 Heating Cap (Btuh) @ 47 F: 59500
SEER2 Rating (Cooling): 20.5
EER2 Rating (Cooling): 13
Region IV HSPF2 Ratings: 8.5
M1 Heating Cap(Btuh) @ 17 F: 50000
M1 COP @ 5 F: 2.18
M1 Heating Cap(Btuh) @ 5 F: 38500

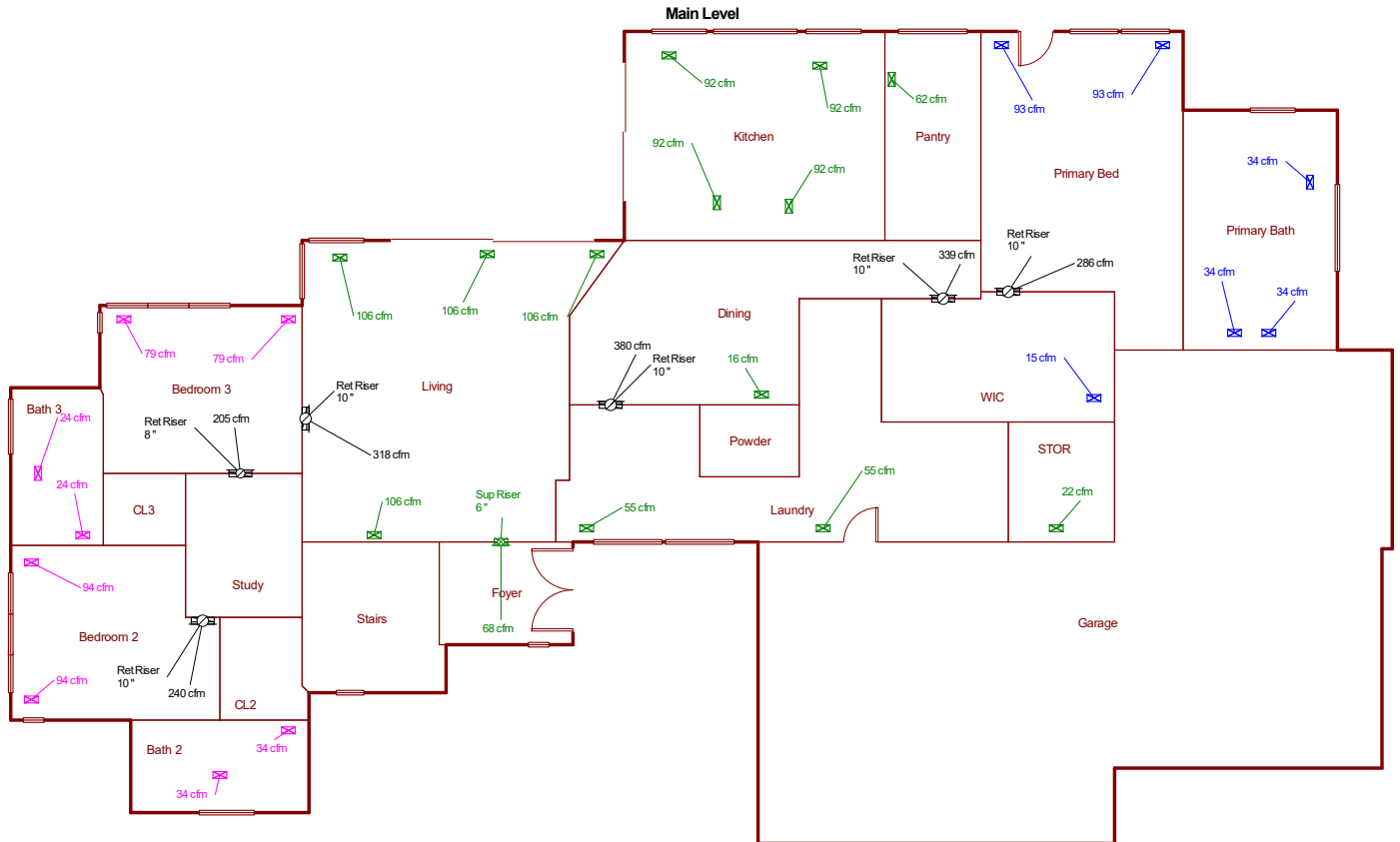
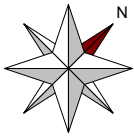
Heating Adjusted capacity for elevation and refrigerant line loss = 30307 Btuh

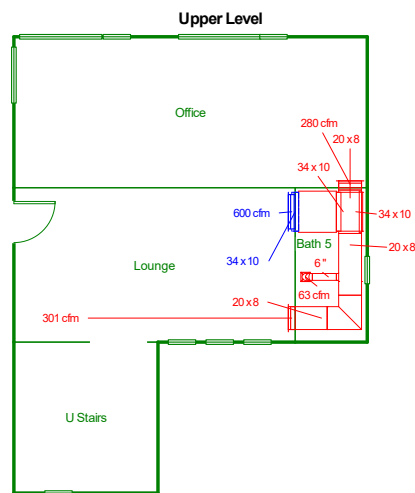
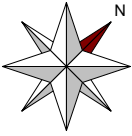
Cooling Adjusted capacity for elevation ACCA Blower heat loss, refrigerant line loss = 43951 Btuh



Job #: 7855 Spring Dr Boulder CO 80303
Performed by Daniel Thomas for:
 7855 Spring Dr Boulder CO 80303

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Duct System Summary

Ducted Mini AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0.16 in H ₂ O	0.16 in H ₂ O
Available static pressure	0.34 in H ₂ O	0.34 in H ₂ O
Supply / return available pressure	0.300 / 0.040 in H ₂ O	0.300 / 0.040 in H ₂ O
Lowest friction rate	0.132 in/100ft	0.132 in/100ft
Actual air flow	600 cfm	600 cfm
Total effective length (TEL)	258 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Bath 5	h 1359	63	29	0.147	6.0	0x0	ShMt	9.0	195.0	st3
Lounge	h 6471	301	292	0.132	10.0	8x 20	ShMt	13.0	215.0	st3
Office	c 3814	235	280	0.196	10.0	8x 20	ShMt	3.0	150.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	Peak AVF	365	320	0.132	328	12.0	8 x 20	ShtMetl	st1
st1	Peak AVF	600	600	0.132	254	14.0	10 x 34	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	600	600	30.5	0.132	254	14.0	10x 34		ShMt	

Bold/italic values have been manually overridden





Duct System Summary
Main AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

	Heating	Cooling
External static pressure	0.70 in H2O	0.70 in H2O
Pressure losses	0.16 in H2O	0.16 in H2O
Available static pressure	0.54 in H2O	0.54 in H2O
Supply / return available pressure	0.314 / 0.226 in H2O	0.314 / 0.226 in H2O
Lowest friction rate	0.083 in/100ft	0.083 in/100ft
Actual air flow	1950 cfm	1950 cfm
Total effective length (TEL)	654 ft	

Bold/italic values have been manually overridden

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk	
Bath 2	h	1292	34	26	0.085	4.0	0x 0	ShMt	57.2	310.0	st15
Bath 2-A	h	1292	34	26	0.113	4.0	0x 0	ShMt	49.0	230.0	st15
Bath 3	c	440	23	24	0.091	4.0	0x 0	ShMt	49.8	295.0	st15
Bath 3-A	c	440	23	24	0.094	4.0	0x 0	ShMt	50.5	285.0	st15
Bath 4	c	207	8	11	0.137	4.0	0x 0	ShMt	19.0	210.0	st6
Bedroom 2	c	1720	40	94	0.095	6.0	0x 0	ShMt	55.5	275.0	st15
Bedroom 2-A	c	1720	40	94	0.092	6.0	0x 0	ShMt	66.4	275.0	st15
Bedroom 3	c	1443	37	79	0.088	6.0	0x 0	ShMt	55.5	300.0	st15
Bedroom 3-A	c	1443	37	79	0.115	6.0	0x 0	ShMt	43.5	230.0	st15
Crawlspace	h	5477	143	33	0.105	8.0	0x 0	ShMt	58.0	240.0	sf7
Crawlspace-A	h	5477	143	33	0.128	8.0	0x 0	ShMt	25.8	220.0	st6
Crawlspace-B	h	5477	143	33	0.118	8.0	0x 0	ShMt	36.2	230.0	st6
Crawlspace-C	h	5477	143	33	0.099	8.0	0x 0	ShMt	66.2	250.0	st7
Crawlspace-D	h	5477	143	33	0.104	8.0	0x 0	ShMt	72.0	230.0	sf7
Crawlspace-E	h	5477	143	33	0.100	8.0	0x 0	ShMt	52.8	260.0	st7
Dining	c	299	8	16	0.086	4.0	0x 0	ShMt	41.5	325.0	st12
Foyer	h	2598	68	47	0.121	6.0	0x 0	ShMt	33.8	225.0	st13
Kitchen	c	1693	33	92	0.101	6.0	0x 0	ShMt	35.0	275.0	st12
Kitchen-A	c	1693	33	92	0.083	6.0	0x 0	ShMt	45.2	335.0	st12
Kitchen-B	c	1693	33	92	0.089	6.0	0x 0	ShMt	27.8	325.0	st12
Kitchen-C	c	1693	33	92	0.087	6.0	0x 0	ShMt	32.8	330.0	st12
Laundry	c	1013	38	55	0.086	6.0	0x 0	ShMt	55.8	310.0	st12
Laundry-A	c	1013	38	55	0.127	6.0	0x 0	ShMt	16.5	230.0	st13
Library	c	1610	38	88	0.105	6.0	0x 0	ShMt	49.2	250.0	st6
Living	c	1947	31	106	0.131	6.0	0x 0	ShMt	44.2	195.0	st13
Living-A	c	1947	31	106	0.118	6.0	0x 0	ShMt	25.8	240.0	st13
Living-B	c	1947	31	106	0.132	6.0	0x 0	ShMt	32.5	205.0	st13
Living-C	c	1947	31	106	0.126	6.0	0x 0	ShMt	33.8	215.0	st13
Pantry	c	1135	23	62	0.090	6.0	0x 0	ShMt	49.5	300.0	st12
Pool Table	c	1741	24	95	0.103	6.0	0x 0	ShMt	73.9	230.0	st6
Pool Table-A	c	1741	24	95	0.105	6.0	0x 0	ShMt	58.7	240.0	st6
Primary Bath	h	1287	34	29	0.114	4.0	0x 0	ShMt	69.3	205.0	sf9
Primary Bath-A	h	1287	34	29	0.103	4.0	0x 0	ShMt	60.3	245.0	sf9
Primary Bath-B	h	1287	34	29	0.105	4.0	0x 0	ShMt	62.8	235.0	sf9
Primary Bed	c	1700	42	93	0.096	6.0	0x 0	ShMt	56.8	270.0	sf9
Primary Bed-A	c	1700	42	93	0.097	6.0	0x 0	ShMt	68.5	255.0	sf9
Rec Room	c	1763	30	96	0.104	6.0	0x 0	ShMt	27.7	275.0	st6
Rec Room-A	c	1763	30	96	0.103	6.0	0x 0	ShMt	40.7	265.0	st6
STOR	h	847	22	9	0.087	4.0	0x 0	ShMt	72.8	290.0	st12
Storage-A	h	594	16	0	0.095	4.0	0x 0	ShMt	69.2	260.0	st6
WIC	c	273	13	15	0.100	4.0	0x 0	ShMt	54.8	260.0	sf9

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st6	Peak AVF	456	546	0.095	696	12.0	0 x 0	ShtMetl	st8
st8	Peak AVF	1029	678	0.095	374	24.0	18 x 22	ShtMetl	st10
st10	Peak AVF	1226	964	0.095	446	24.0	18 x 22	ShtMetl	st14
st12	Peak AVF	224	511	0.083	651	12.0	0 x 0	ShtMetl	st11
st11	Peak AVF	456	1037	0.083	743	16.0	0 x 0	ShtMetl	st14
st13	Peak AVF	231	526	0.118	670	12.0	0 x 0	ShtMetl	st11
st14	Peak AVF	1682	2001	0.083	728	24.0	18 x 22	ShtMetl	st2
st15	Peak AVF	268	445	0.085	566	12.0	0 x 0	ShtMetl	st2
st2	Peak AVF	1950	2446	0.083	890	20.0	18 x 22	ShtMetl	
st7	Peak AVF	572	131	0.099	728	12.0	0 x 0	ShtMetl	st8
st9	Peak AVF	198	286	0.096	365	12.0	0 x 0	ShtMetl	st10

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb12	0x 0	239	380	73.8	0.306	698	10.0	0x 0		ShMt	rt2
rb8	0x 0	68	203	86.8	0.261	583	8.0	0x 0		ShMt	rt5
rb10	0x 0	38	88	117.0	0.193	447	6.0	0x 0		ShMt	rt5
rb9	0x 0	63	190	125.0	0.181	544	8.0	0x 0		ShMt	rt5
rb4	0x 0	198	286	158.0	0.143	525	10.0	0x 0		ShMt	rt4
rb2	0x 0	858	197	67.8	0.334	615	16.0	0x 0		ShMt	rt1
rb5	0x 0	121	205	180.8	0.125	588	8.0	0x 0		ShMt	rt5
rb6	0x 0	147	240	273.8	0.083	439	10.0	0x 0		ShMt	rt5
rb7	0x 0	94	318	115.0	0.197	583	10.0	0x 0		ShMt	rt5
rb3	0x 0	123	339	167.8	0.135	621	10.0	0x 0		ShMt	rt3

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt2	Peak AVF	772	1624	0.083	665	17.1	16 x 22	ShtMetl	
rt5	Peak AVF	532	1244	0.083	678	15.5	12 x 22	ShtMetl	rt2
rt4	Peak AVF	198	286	0.143	525	10.0	0 x 0	ShtMetl	rt3
rt3	Peak AVF	320	625	0.135	585	14.0	0 x 0	ShtMetl	rt1
rt1	Peak AVF	1178	822	0.135	667	18.0	0 x 0	ShtMetl	

Bold/italic values have been manually overridden





Static Pressure and Friction Rate Ducted Mini AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Available Static Pressure

	Heating (in H2O)	Cooling (in H2O)
External static pressure	0.50	0.50
Pressure losses		
Coil	0	0
Heat exchanger	0	0
Supply diffusers	0.03	0.03
Return grilles	0.03	0.03
Filter	0.10	0.10
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.34	0.34

Total Effective Length

	Supply (ft)	Return (ft)
Measured length of run-out	4	0
Measured length of trunk	9	0
Equivalent length of fittings	215	30
Total length	228	30
Total effective length		258

Friction Rate

	Heating (in/100ft)		Cooling (in/100ft)	
Supply Ducts	0.132	OK	0.132	OK
Return Ducts	0.132	OK	0.132	OK

Fitting Equivalent Length Details

Supply	4J=30, 8D3=65, 9I1=85, 1A=35: TotalEL=215
Return	6M=20, 5J3=10: TotalEL=30





Static Pressure and Friction Rate Main AH

Job: 7855 Spring Dr Boulder C...
Date: 02/28/2025
By: Daniel Thomas

Project Information

For: 7855 Spring Dr Boulder CO 80303

Available Static Pressure

	Heating (in H2O)	Cooling (in H2O)
External static pressure	0.70	0.70
Pressure losses		
Coil	0	0
Heat exchanger	0	0
Supply diffusers	0.03	0.03
Return grilles	0.03	0.03
Filter	0.10	0.10
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.54	0.54

Total Effective Length

	Supply (ft)	Return (ft)
Measured length of run-out	12	18
Measured length of trunk	34	36
Equivalent length of fittings	335	220
Total length	380	274
Total effective length		654

Friction Rate

	Heating (in/100ft)		Cooling (in/100ft)	
Supply Ducts	0.083	OK	0.083	OK
Return Ducts	0.083	OK	0.083	OK

Fitting Equivalent Length Details

Supply	4J=30, 9I1=85, 9I2=5, 9I2=5, 9I1=85, 9I1=85, 9I2=5, 1A=35: TotalEL=335
Return	6C6=115, 6M=20, 6CB=25, 6CA=10, 6CA=10, 6CA=10, 6CA=10, 5E1=10, 6CA=10: TotalEL=220

